

REMARKS

Applicant's representative respectfully thanks the Examiner for the courtesies extended during the August 30, 2006 interview.

As requested in writing in the Amendment filed March 20, 2006, Applicant respectfully requested the grant of an interview to discuss the merits of the outstanding Amendment, and any further proposed amendments, for expediting prosecution of this case. Since the interview was not granted until August 28, 2006 (which is after issuance of the outstanding Non-Final Office dated May 11, 2006), Applicant respectfully requests that if the claims as presented herein are not considered patentable over the prior art of record, that any further Official Action be made a Non-Final Official Action since Applicant was not granted an opportunity to amend the claims and/or present arguments after the filing of the RCE on April 25, 2006, but before issuance of the outstanding Non-Final Office dated May 11, 2006.

Applicant's representative further requests the Examiner to contact him at 202-906-8696 for any further inquiries for expediting allowance of this case.

Summary of the Office Action

In the Office Action, claims 1-4, 6-9, 11, 12, 14-19, 21, 22, 24, 25 and 27 stand rejected under 35 U.S.C. § 102 (e), as being anticipated by U.S. Patent No. 6,463,121 to *Milnes*.

Claims 10, 13, 23 and 26 stand rejected under 35 U.S.C. § 103 (a), as being unpatentable over *Milnes* in view of U.S. Patent No. 6,233,310 to *Relihan*.

Summary of the Response to the Office Action

Applicant proposes amending claims 1 and 16 in conformance with the helpful discussions with the Examiner per the August 30, 2006 interview. Accordingly, claims 1-4, 6-19 and 21-29 are pending for further consideration.

All Claims are Allowable

In the Office Action, claims 1-4, 6-9, 11, 12, 14-19, 21, 22, 24, 25 and 27 stand rejected under 35 U.S.C. § 102 (e), as being anticipated by U.S. Patent No. 6,463,121 to *Milnes*. Claims 10, 13, 23 and 26 stand rejected under 35 U.S.C. § 103 (a), as being unpatentable over *Milnes* in view of U.S. Patent No. 6,233,310 to *Relihan*. Applicant traverses the rejection of claims 1-4, 6-19 and 21-29 for the following reasons.

With regard to independent claim 1, Applicant respectfully asserts that *Milnes* and *Relihan*, viewed either singly or in combination, fail to teach or fairly suggest a system for positioning a dental X-ray apparatus including, “a processing unit which effects calculations based on the digitized dental X-ray image, the relevant information concerning the dental X-ray apparatus, and the selected area, in order to ascertain control data for controlling the dental X-ray apparatus such that the selected area is covered when a new dental X-ray image is made, the information concerning the X-ray apparatus comprises coordinates of a trajectory which have been saved in relation to the digitized X-ray image, the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time,” as recited in independent claim 1, as amended.

Support for these features recited in claim 1 can be found at least on page 2, line 14 to page 5, line 9, and further on page 5, line 25 to page 7, line 9 of the originally filed specification, and in Figs. 1-3 of the originally filed drawings. Specifically, as shown in Figs. 1-3, the present invention provides a system for positioning a dental X-ray apparatus. The system includes an input and output device (i.e. a keyboard and a display monitor) for interactive control.

The system further includes a storage area, in which at least one digitized dental X-ray image and information concerning the dental X-ray apparatus assignable to the digitized dental X-ray image are stored. This information concerning the X-ray apparatus preferably relates to position parameters of the movable parts. Thus a certain area of an X-ray image can be associated with the corresponding parameters of the X-ray apparatus. Vice versa, the X-ray apparatus can be controlled by the X-ray image.

The system further includes a computer interface, via which information can be interchanged with the dental X-ray apparatus, and means (i.e. a pointing device) for selecting areas in the digitized dental X-ray image. The system also includes a processing unit which effects calculations based on the digitized dental X-ray image, the relevant information concerning the dental X-ray apparatus, and the selected area, in order to ascertain control data for controlling the dental X-ray apparatus such that the selected area is covered when a new dental X-ray image is made. The information concerning the X-ray apparatus includes coordinates of a trajectory which have been saved in relation to the digitized X-ray image. As recited in independent claim 1 and illustrated in Figs. 2 and 3, the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time (see page 3, lines 1-8).

With regard to claims 1-4, 6-19 and 21-29, the Office Action cites *Milnes* as teaching or suggesting the system and method recited in claims 1-4, 6-9, 11, 12, 14-19, 21, 22, 24, 25 and 27, and further cites *Relihan* as teaching or suggesting the system and method recited in claims 10, 13, 23 and 26.

Milnes, as illustrated in Figs. 1-8 (especially Figs. 1 and 2) thereof, discloses an X-ray system 100 and method including a display device 110, a gantry 130 having an X-ray generator 132, a table 140 having an X-ray sensor 142, and an X-ray control system 120 connected to the display device, the gantry and the table, (Col. 3:32-37). The X-ray control system includes user input 122 for indicating the position of the next X-ray exposure, (Col. 3:47-48). The X-ray control system receives X-ray data from the sensor, processes the data to form a static X-ray image, displays the X-ray image on the display device and shifts the X-ray generator relative to the X-ray sensor, (Col. 3:65 – Col. 4:9). The amount and direction of shift is accurately determined using data from the previous static X-ray image, (Col. 2:1-3 and Col. 7:1-4). Further, as discussed in Col. 5:43-56 of *Milnes*, the *Milnes* X-ray control system 120 automatically follows a tip of a catheter or a contrast injected into a body in order to reduce the number, size and duration of the static X-ray images. The catheter tip and the contrast injected into a body may move on a trajectory.

As discussed during the August 30, 2006 interview, whereas *Milnes* appears to disclose manual (i.e. operator controlled; see Col. 3:47 – Col. 4:16) or automatic (catheter tip/contrast based; see Col. 6:43-67) movement of the X-ray apparatus, *Milnes* clearly does not teach or fairly suggest a dental X-ray apparatus including, “a processing unit which effects calculations based on the digitized dental X-ray image, the relevant information concerning the dental X-ray apparatus, and the selected area, in order to ascertain control data for controlling the dental X-ray apparatus such that the selected area is covered when a new dental X-ray image is made, the information concerning the X-ray apparatus comprises coordinates of a trajectory which have been saved in relation to the digitized X-ray image, the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time,” as recited in independent claim 1, as amended.

Specifically, contrary to the teachings of *Milnes*, Claim 1, as amended per the October 6, 2005 Amendment, recited that the information concerning the X-ray apparatus includes coordinates of a trajectory which have been saved in relation to the digitized X-ray image. This means that the X-ray apparatus must have been moving relative to the object to be X-rayed during acquisition. This further means that information is saved of how the X-ray apparatus has moved during the acquisition of the image already stored in the storage area in order to ascertain control data for steering the X-Ray apparatus to make it cover the selected area (for the next image), as discussed on page 3, lines 1-4 of the description.

On the contrary, as discussed in Col. 6:43-57 of *Milnes*, the *Milnes* X-ray control system 120 automatically follows a tip of a catheter or a contrast injected into a body in order to reduce the number, size and duration of the X-ray images. The catheter tip and the contrast injected into a body may move on a trajectory.

In other words, *Milnes* does not disclose that the information about the trajectory is stored or calculated, because *Milnes* does not disclose movement of the X-ray apparatus relative to the object to be X-rayed in the image already stored in the storage area at all. The X-ray control system just follows a tip or a contrast in the recent exposure.

Milnes itself clearly indicates that X-ray control system 120 automatically follows a tip of a catheter or a contrast injected into a body in order to reduce the number, size and duration of the X-ray images, with the catheter tip and the contrast injected into a body moving on a trajectory.

Thus based on the express language of *Milnes*, Applicant respectfully asserts that the holding of the Office Action as indicated above is unsupported and in fact contrary to the clear language of *Milnes*.

Applicant thus respectfully asserts that *Milnes* clearly does not teach or fairly suggest a dental X-ray apparatus, wherein, “the information concerning the X-ray apparatus comprises coordinates of a trajectory which have been saved in relation to the digitized X-ray image,” as recited in independent claim 1, as amended.

As noted above, in the interest of expediting prosecution of this application, claim 1 has been further amended to now recite, “the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time.”

With regard to the teachings of *Milnes*, Applicant respectfully asserts that *Milnes* also does not teach or fairly suggest the noted features of independent claim 1, as now amended, namely the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time.

As discussed in the specification on page 1, lines 1-8, a “component of the present invention is a processing unit, which carries out calculations on the basis of the digitized, preferably individual X-ray image, the associated information concerning the X-ray apparatus and the selected area in order to ascertain control data for steering the X-ray apparatus to make it cover the selected area. These calculations are preferably based on the path information, which, as described above, has been assigned to the imaging information. The path information gives knowledge of the movement of the X-ray apparatus carried out at a certain point of time. Thus the coordinates of the X-ray apparatus are given in relation to a certain point of time.”

As discussed on page 4, lines 13-17, “calculations are carried out based on the digitized X-ray image, the relevant information concerning the X-ray apparatus, and the selected area, in order to ascertain control data which will steer the X-ray apparatus such that the selected area is imaged.” Further, as discussed on page 4, lines 19-24, “[t]he information concerning the X-ray apparatus preferably relates to coordinates of the trajectories stored in relation to the digitized X-ray image. With the aid of this information it is possible to calculate a segment of the trajectory for the selected area. The calculation can likewise take into account current and voltage parameters which have been stored in relation to the digitized X-ray image.”

Yet further, as discussed on page 5, lines 27-30, “calculation of the presettings involves the previous position, the previous image, and the previous trajectory. Also required for the calculation is the new object to be examined and the new type of examination. The new settings are calculated in the manner described above. The X-ray apparatus is set on the basis of the parameters thus determined.”

Thus based on the disclosure above, as now recited in independent claim 1 and discussed during the August 30, 2006 interview, the trajectory which gives knowledge of movement of the dental X-ray apparatus is calculated by means the processing unit.

Thus based at least on the distinctions specified above and the further amendments to claim 1, Applicant respectfully asserts that *Milnes* fails to teach or fairly suggest a system for positioning a dental X-ray apparatus, wherein, “the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time,” as recited in independent claim 1, as amended.

With regard to the teachings of *Relihan*, which has been cited as teaching or suggesting the features or steps recited in dependent claims 10, 13, 23 and 26, Applicant respectfully asserts that in view of the requested allowance of independent claim 1 over the teachings of *Milnes*, the teachings of *Relihan* as applied to dependent claims 10, 13, 23 and 26 would be inapplicable upon allowance of independent claim 1.

As pointed out in MPEP § 2131, “[t]o anticipate a claim, the reference must teach every element of the claim.” “A claim is anticipated only if each and every element as set forth in the

claim is found, either expressly or inherently described, in a single prior art reference.”

Verdegaal Bros. v. Union Oil Co. Of California, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Moreover, as pointed out in M.P.E.P. § 2143.03, “[t]o establish prima facie obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art”. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974). Since these criteria have not been met, Applicant respectfully asserts that the rejections under 35 U.S.C. § 102 (e) and § 103 (a) should be withdrawn because *Milnes* and *Relihan* do not teach or suggest each feature of independent claim 1, as amended.

In view of the above arguments, Applicant respectfully requests the rejection of independent claim 1 under 35 U.S.C. § 102 be withdrawn. Additionally, claims 2-15 and 28, which depend from independent claim 1, are allowable at least because their base claim is allowable, as well as for the additional features recited therein.

Independent claim 16

With regard to independent claim 16, Applicant respectfully asserts that *Milnes* and *Relihan* fail to teach or fairly suggest a method of positioning one of an emitter and a detector of a dental X-ray apparatus using an existing digitized dental X-ray image and information concerning the dental X-ray apparatus and assignable to the digitized dental X-ray image, the method including the steps of, “carrying out computation on the basis of the digitized X-ray image, relevant information concerning the dental X-ray apparatus, and a selected area, in order to ascertain control data which controls the dental X-ray apparatus such that the selected area can be depicted in a new dental X-ray image, the information concerning the X-ray apparatus comprises coordinates of the trajectory which have been saved in relation to the digitized X-ray image, and a segment of the trajectory is calculated on the basis of the selected area, and the trajectory gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time,” as recited in independent claim 16, as amended.

Applicant respectfully asserts that independent claim 16 is allowable for at least the reasons presented above for the allowance of independent claim 1, and the additional features

recited therein. In the interest of avoiding redundant arguments, the reasons for allowance of independent claim 16 are not repeated herein. Additionally, claims 17-27 and 29, which depend from independent claim 16, are allowable at least because their base claim is allowable, as well as for the additional features recited therein.

CONCLUSION

In view of the foregoing, Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicant's undersigned representative to expedite prosecution.

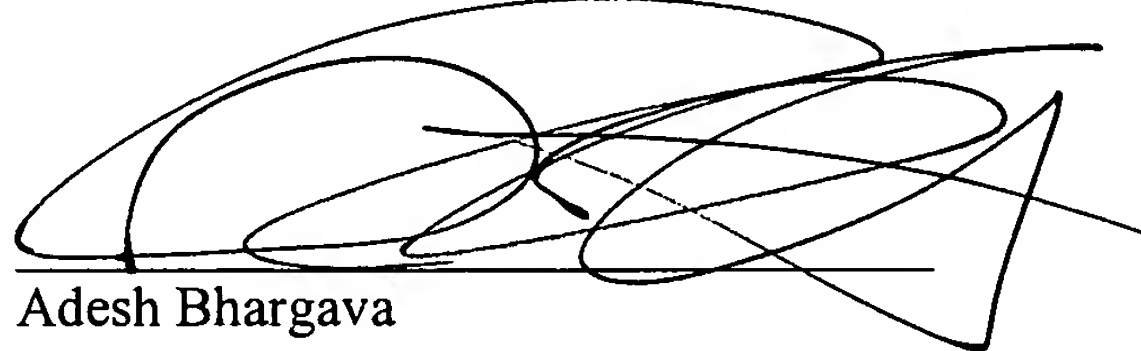
If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 04-2223. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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